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RECENT DEVELOPMENT

The 1978 Great Lakes Water Quality Agreement and Prospects for U.S.-Canada Pollution Control

I. INTRODUCTION

On November 22, 1978, the Governments of the United States and Canada entered into an agreement to improve the water quality of the Great Lakes. The Agreement, entitled the Great Lakes Water Quality Agreement of 1978,¹ supersedes the Great Lakes Water Quality Agreement of 1972,² and reflects the continued concern of both nations over the future direction and quality of the Great Lakes ecosystem.

This Note will begin with a brief discussion of the history of American-Canadian efforts to control Great Lakes pollution, and will follow with an examination of the 1972 accord. After exploring the provisions of the 1978 pact, the author will conclude with some observations and an analysis of the new Agreement.

The 1978 Agreement contains important new provisions which reflect the changing complexities of Great Lakes pollution. Of particular significance are the new or revised articles which address 1) the problem of toxic substances in the lakes; 2) pollution from assorted land use activities; and 3) the effect of air pollution on Great Lakes water quality. These provisions notwithstanding, the author contends that the new Agreement must be met with greater support — particularly from the United States — than was provided the 1972 Agreement. If the 1978 accord does not receive such support, it will succumb to the assorted economic and political pressures which befell the earlier pact, and hence be an ineffectual mechanism of environmental protection for the Great Lakes basin.

1. United States-Canada, Nov. 22, 1978, [1978] ____ U.S.T. ____, T.I.A.S. No. ____ [hereinafter cited as 1978 Agreement].

2. United States-Canada, April 15, 1972, [1972] 23 U.S.T. 301, T.I.A.S. No. 7312 [hereinafter cited as 1972 Agreement].

II. HISTORY OF AMERICAN-CANADIAN GREAT LAKES POLLUTION CONTROL EFFORTS

The problem of pollution of the boundary waters between the United States and Canada received formal recognition in the Boundary Waters Treaty of 1909.³ The Treaty, whose purpose is to prevent disputes between the two nations regarding the use of boundary waters,⁴ establishes specific regulations to govern the use, obstruction and diversion of the waters between the United States and Canada.⁵ Of equal importance are the provisions of the Treaty which establish the International Joint Commission (I.J.C.) and define its powers and responsibilities.⁶

Water quality was not of critical concern at the time the Treaty was established.⁷ Article IV, however, includes the provision that the waters "shall not be polluted on either side to the injury of health or property on the other."⁸ Furthermore, the Commission is given power to investigate and comment on boundary water problems, including pollution problems, which confront both nations.

3. Boundary Waters Treaty, Jan. 11, 1909, United States-Great Britain, 36 Stat. 2448, T.S. No. 548 [hereinafter cited as Boundary Waters Treaty]. Canada did not obtain treaty power until 1923. D. PIPER, *THE INTERNATIONAL LAW OF THE GREAT LAKES* 6 (1967) [hereinafter cited as PIPER]. For a thorough examination of the early history of the Boundary Waters Treaty and the International Joint Commission which it established, see C. CHACKO, *THE INTERNATIONAL JOINT COMMISSION* (1932); L. BLOOMFIELD & G. FITZGERALD, *BOUNDARY WATERS PROBLEMS OF CANADA AND THE UNITED STATES* (1958). There is a wealth of literature which examines in detail recent American-Canadian efforts to control Great Lakes pollution. Bilder, *Controlling Great Lakes Pollution: A Study in United States-Canadian Environmental Cooperation*, 70 MICH. L. REV. 469 (1972) [hereinafter cited as Bilder]; Note, *The International Joint Commission (United States-Canada) and the International Boundary Water Commission (United States-Mexico): Potential for Environmental Control Along the Boundaries*, 6 N.Y.U.J. INT'L L. & POL. 499 (1973) [hereinafter cited as *Environmental Control Along the Boundaries*]; Comment, *Pollution of the Great Lakes: A Study of International Environmental Control Efforts*, 19 WAYNE L. REV. 166 (1972) [hereinafter cited as *Pollution of the Great Lakes*]; Jordan, *Great Lakes Pollution: A Framework for Action*, 5 OTTAWA L. REV. 65 (1971) [hereinafter cited as Jordan]; PIPER, *supra*.

4. The purpose of the Boundary Waters Treaty, as set forth in the preamble, is very broad indeed:

The United States of America and His Majesty the King of the United Kingdom of Great Britain and Ireland and of the British Dominions beyond the Seas, Emperor of India, being equally desirous to prevent disputes regarding the use of boundary waters and to settle all questions which are now pending between the United States and the Dominion of Canada involving the rights, obligations, or interests of either in relation to the other or to the inhabitants of the other, along their common frontier, and to make provision for the adjustment and settlement of all such questions as may hereafter arise, have resolved to conclude a treaty in furtherance of these ends.

5. Boundary Waters Treaty, *supra* note 3, arts. I-IV, VII, VIII.

6. *Id.*, arts. VII-X.

7. Jordan, *supra* note 3, at 67; *Pollution of the Great Lakes*, *supra* note 3, at 167; Bilder, *supra* note 3, at 480-82.

8. Boundary Waters Treaty, *supra* note 3, art. IV. This measure was sharply debated during Treaty negotiations, and it was only with great reluctance that the United States supported the anti-pollution provision. Jordan, *supra* note 3, at 67-68.

the problem, land based transportation and industrial sources were the primary source of atmospheric pollution.¹⁶

Finally, in 1964, the Commission was asked in "one of the most significant and broad ranging postwar pollution references"¹⁷ to inquire into the extent of pollution of the lower Great Lakes.¹⁸ In response to this request, the I.J.C. issued three interim reports¹⁹ identifying the most critical problems and suggesting immediate remedial action. A full report on the quality of the lower Great Lakes was issued in 1970; specific recommendations, including strong remedial action, were proposed.²⁰ Citing grave deterioration of the water quality of the lower Great Lakes, the I.J.C. urged that general and specific water quality standards be adopted and that the Commission be vested with "authority, responsibility and means for coordination, surveillance, monitoring, implementation, reporting, making recommendations to governments . . . and such other duties related to preservation and improvement of the quality of the boundary waters of the Great Lakes — St. Lawrence System as may be agreed by the said Governments."²¹

These findings and conclusions by the I.J.C. regarding the water quality of the lower Great Lakes, coupled with increasing public interest in the state of the environment,²² and increasing concern by Canada over the deterioration of the Great Lakes ecosystem,²³ led to negotiations between the United States

16. The report was issued on May 31, 1960. I.J.C., REPORT ON THE POLLUTION OF THE ATMOSPHERE IN THE DETROIT RIVER AREA (1960).

17. Bilder, *supra* note 3, at 495.

18. I.J.C. Doc. No. 83 (1964); Bilder, *supra* note 3, at 495-96; Jordan, *supra* note 3, at 72-74. The Lower Great Lakes include Lake Erie, Lake Ontario and the International Section of the St. Lawrence River. I.J.C. *Completes Report on Pollution of the Lower Great Lakes*, 64 DEPT STATE BULL. 203, 203-04 (1971).

19. I.J.C., INTERIM REPORT ON THE POLLUTION OF LAKE ERIE, LAKE ONTARIO AND THE INTERNATIONAL SECTION OF THE ST. LAWRENCE RIVER (1964); I.J.C., SECOND INTERIM REPORT ON THE POLLUTION OF LAKE ERIE, LAKE ONTARIO AND THE INTERNATIONAL SECTION OF THE ST. LAWRENCE RIVER (1968); I.J.C., THIRD INTERIM REPORT ON POLLUTION OF LAKE ERIE, LAKE ONTARIO AND THE INTERNATIONAL SECTION OF THE ST. LAWRENCE RIVER: SPECIAL REPORT ON POTENTIAL OIL POLLUTION, EUTROPHICATION AND POLLUTION FROM WATERCRAFT (1970) [hereinafter cited as THIRD INTERIM REPORT].

20. I.J.C., REPORT ON POLLUTION OF LAKE ERIE, LAKE ONTARIO AND THE INTERNATIONAL SECTION OF THE ST. LAWRENCE RIVER (1970). The Commission reported that pollution of the lower Great Lakes was occurring on both sides of the boundary to the detriment of both nations and to an extent which violated Article IV of the Boundary Waters Treaty. Industries and municipalities were the principal sources of the pollution and the I.J.C. urged the implementation of immediate remedial measures, including the adoption of water quality objectives, reduction of phosphate content in detergents and the prompt implementation of municipal and industrial pollution control programs. I.J.C. *Completes Report on Pollution of the Lower Great Lakes*, 64 DEPT STATE BULL. 203, 203-04 (1971); see also Jordan, *supra* note 3, at 74-79.

21. I.J.C., REPORT ON POLLUTION OF LAKE ERIE, LAKE ONTARIO AND THE INTERNATIONAL SECTION OF THE ST. LAWRENCE RIVER 156 (1970).

22. See *Pollution Fight Pressed Across Nation*, N.Y. Times, Feb. 24, 1970, at 1, col. 5.

23. *Canada to Wage War on Pollution*, N.Y. Times, Aug. 10, 1969, at 3, col. 1; *Pollution on the Great Lakes* *supra* note 3, at 172.

and Canada for the adoption of more stringent Great Lakes pollution measures. These negotiations resulted in the Great Lakes Water Quality Agreement of 1972.²⁴

III. THE GREAT LAKES WATER QUALITY AGREEMENT OF 1972

A. *The Making of the Agreement*

Development of the 1972 Agreement began early in 1970 with the convening of United States-Canada ministerial meetings.²⁵ Working groups were established at these meetings to examine in depth the wide scope of Great Lakes pollution problems.²⁶ The principal recommendation of these working groups was that both nations should enter into an agreement encompassing the water quality objectives proposed by the I.J.C. in 1970.²⁷ High ministerial meetings were reconvened in 1971.²⁸ The recommendation of the working groups was endorsed²⁹ and later adopted in the form of the 1972 Agreement.

The Agreement, which attacked a broad range of Great Lakes pollution problems, was a significant milestone for several reasons. It established for the first time general and specific water quality objectives. The former required that the Great Lakes be free from toxic substances, nutrients which stimulate the eutrophication process,³⁰ floating materials, nuisance conditions, and

24. 1972 Agreement, *supra* note 2. See *Great Lakes Pact Signed in Ottawa by Nixon, Trudeau*, N.Y. Times, April 16, 1972, at 1, col. 3; *Nixon and Trudeau Sign Pact to Preserve, Protect Great Lakes*, Chicago Tribune, April 16, 1972, at 7, col. 1.

The 1972 agreement is an executive agreement, which is distinguished from a treaty in that it does not require the advice and consent of two-thirds of the Senate under Article II of the United States Constitution. 1 D.P. O'CONNELL, INTERNATIONAL LAW 206 (2d ed. 1970). An executive agreement may be established by the President under Congressional authorization, RESTATEMENT (SECOND) OF FOREIGN RELATIONS LAW OF THE UNITED STATES § 120 (1965), pursuant to a formal treaty, *id.*, § 119, or pursuant to constitutional authority. *Id.*, § 121. See also 1 D.P. O'CONNELL, INTERNATIONAL LAW 206-07 (2d ed. 1970). The 1972 pact was enacted pursuant to the Boundary Waters Treaty, *supra* note 3; the National Environmental Policy Act, 42 U.S.C. § 4332(F) (1976); the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. § 1251(C) (1976); and constitutional authority vested in the President. Telephone interview with L. Damrasch, U.S. Dep't of State (Mar. 12, 1979).

25. *U.S. and Canada Hold Meeting on Great Lakes Pollution*, 64 DEPT STATE BULL. 828 (1971); *Pollution of the Great Lakes*, *supra* note 3, at 172-73; Bilder, *supra* note 3, at 501.

26. *U.S. and Canada Hold Meeting on Great Lakes Pollution*, 64 DEPT STATE BULL. 828-31 (1971); Bilder, *supra* note 3, at 501-02.

27. *U.S. and Canada Hold Meeting on Great Lakes Pollution*, 64 DEPT STATE BULL. 828-31 (1971). Bilder, *supra* note 3, at 545 states: "The proposed Agreement is in effect a formal endorsement of the Commission's recommendations in its Report on the Lower Lakes reference and lifts these recommendations to the level of an international obligation."

28. *U.S. and Canada Hold Meeting on Great Lakes Pollution*, 64 DEPT STATE BULL. 828 (1971).

29. *Id.*; Bilder, *supra* note 3, at 502.

30. Eutrophication is defined as "the biological response caused by an increase in nutrients in-to lakes." THIRD INTERIM REPORT, *supra* note 12, at 15. The authors of the report explain further:

sludge deposits;³¹ the latter included standards for dissolved oxygen, total dissolved solids, pH levels, iron, coliform, phosphorous and radioactivity, and also provided that more stringent requirements could be adopted by either party.³² The Agreement also established specific principles and means for

The biological productivity . . . [of a lake] depends on the supply of essential nutrients. Lakes well supplied with these nutrients tend to be the most productive. This relationship is the basis for the "trophic" system of lake classification.

Oligotrophic lakes are poorly supplied with nutrients and support little plant growth. The biological production is generally low; the waters are clear; and the deeper waters are well supplied with oxygen throughout the year. Eutrophic lakes are rich in plant nutrients and support a heavy growth of aquatic vegetation. As a result, biological production is high; the waters are turbid due to the dense growth of phytoplankton; and the deeper waters during periods of restricted circulation become deficient in oxygen as a result of the decomposition of great quantities of organic material. Mesotrophic lakes are intermediate between oligotrophic and eutrophic. They have a moderate supply of nutrients, moderate plant abundance and moderate biological production.

If the supply of nutrients to an extremely oligotrophic lake is progressively increased, the lake will become mesotrophic in character, and with further enrichment it will eventually become eutrophic, even extremely eutrophic. This whole process of progressively becoming more eutrophic is known as eutrophication. Thus, eutrophication refers to the whole complex of changes which accompany continuing enrichment of waters by the addition of plant nutrients. These include progressive increases in the growth of algae and aquatic weeds, a general increase in biological activity, successive changes in the kinds of plants and animals living in the lake, oxygen depletion in deep water during periods of restricted circulation, and decreasing depth as a result of accumulating organic sediments.

The biological response produced by natural eutrophication is extremely slow. On the other hand, the inputs of man-derived nutrients into a lake can produce in a few decades a biological response similar to that which under natural conditions would take tens of thousands of years.

Increased population, industrialization, intensified agricultural practices and the use of phosphorus-based detergents since the late 1940's have greatly increased the rate of eutrophication of lakes in many parts of the world. Dense nuisance growths of algae and aquatic weeds degrade water quality. *Cladophora*, an attached alga, piles up on the beaches when dislodged by wave action. Blue-green algae accumulate on the shore creating unsightly odorous scums.

These eutrophic conditions inhibit many of the legitimate uses of the lake. Algal growths interfere with domestic and industrial water supplies by causing taste and odor problems and by clogging filters; contribute to the dramatic decrease in the number of valuable species of fish; restrict the use of prime recreational areas such as beaches; degrade shoreline properties; and spoil aesthetic values.

Although all essential elements are required by plants for their growth, phosphorus and nitrogen are recognized as the most important elements responsible for triggering eutrophication because their supply is commonly lowest in relation to nutritional requirements.

31. at 15-16. One Canadian scientist has reported that "[f]ifty to 50 percent of the phosphorous coming into the . . . Great Lakes could be eliminated by simply banning or greatly reducing detergent phosphates, a step already taken in Canada and a few U.S. states." Schindler, *Eutrophication and Recovery in Experimental Lakes: Implications for Lake Management*, *WORLD ENVIRONMENT*, May 24, 1984, at 257-66 [hereinafter cited as Schindler], *Bulq.* *supra* note 1.

32. 1972 Agreement, art. 2, para. 1, at 1.

33. *supra* note 12. The specific objectives are: protection and further improvement for non-

Great Lakes pollution control, including programs for the control of municipal and industrial source pollution,³³ measures for the control of eutrophication,³⁴ plans for control of pollution from agricultural, forestry and land use activities,³⁵ and programs for control of pollution from shipping activities, dredging activities and offshore and onshore activities.³⁶ It also ex-

degradation of water quality in those areas of the Great Lakes where such water quality exceeds the specific objectives, and for the establishment of mixing zones. *Id.*, Annex I.

33. *Id.*, art. V(a) requires the establishment of

[p]rograms for the abatement and control of discharges of municipal sewage into the Great Lakes System including;

- (i) construction and operation in all municipalities having sewer systems of waste treatment facilities providing levels of treatment consistent with the achievement of the water quality objectives, taking into account the effects of waste from other sources;
- (ii) provision of financial resources to assist prompt construction of needed facilities;
- (iii) establishment of requirements for construction and operating standards for facilities;
- (iv) measures to find practical solutions for reducing pollution from overflows of combined storm and sanitary sewers;
- (v) monitoring, surveillance and enforcement activities necessary to ensure compliance with the foregoing programs and measures.

Art. V(b) addresses the problem of industrial pollution and provides for the establishment of [p]rograms for the abatement and control of pollution from industrial sources, including:

- (i) establishment of waste treatment or control requirements for all industrial plants discharging waste into the Great Lakes System, to provide levels of treatment or reduction of inputs of substances and effects consistent with the achievement of the water quality objectives, taking into account the effects of waste from other sources;
- (ii) requirements for the substantial elimination of discharges into the Great Lakes System of mercury and other toxic heavy metals;
- (iii) requirements for the substantial elimination of discharges into the Great Lakes System of toxic persistent organic contaminants;
- (iv) requirements for the control of thermal discharges;
- (v) measures to control the discharge of radioactive materials into the Great Lakes System;
- (vi) monitoring, surveillance and enforcement activities necessary to ensure compliance with the foregoing requirements and measures.

34. *Id.*, art. V(c) which included "programs to reduce phosphorous inputs in accordance with Annex 2." Phosphorous inputs into the Great Lakes are particularly harmful to water quality as they contribute to the eutrophication process. *See* note 30 *supra*. In 1973, an Appendix to the Great Lakes Water Quality Agreement of 1972 established reductions in phosphorous loadings in Lakes Superior and Huron. *See* Appendix I to the Great Lakes Water Quality Agreement: Reductions in Phosphorous Loadings in Lakes Superior and Huron, [1973] 24 U.S.T. 2268, T.I.A.S. No. 7747.

Phosphorous input into the Great Lakes continues to be a problem, however. *See, e.g., Seek Ban on Phosphorous Soaps in Great Lakes Basin*, Chicago Tribune, Feb. 22, 1977, at 2, col. 5, where it was proposed by Sen. Gaylord Nelson (D.-Wis.) that all Great Lakes basin states ban detergents which contain phosphorous. In contrast, note that Canada prohibits the sale of all detergents containing more than 2.2 percent phosphorous. Schindler, *supra* note 30, at 898.

35. 1972 Agreement, *supra* note 2, art. V(d) included programs to control and limit the effects of pest control products, animal husbandry operations, solid wastes, nutrients and sediments from all land use activities near the Great Lakes.

36. *Id.*, art. V(e), (f), (g).

panded the role of the I.J.C.³⁷ by requiring further investigations on pollution from agricultural and other land use activities³⁸ and on pollution control measures required for the preservation and enhancement of Lake Superior and Lake Huron.³⁹ Two additional joint institutions, the Great Lakes Water Quality Board⁴⁰ and the Research Advisory Board,⁴¹ were established for the purpose of assisting the I.J.C. in the fulfillment of its responsibilities. The Commission also was authorized to "establish as it may deem appropriate such subordinate bodies as may be required to undertake specific tasks, as well as a regional office . . . to assist it in the discharge of its functions."⁴²

B. *The Problems of Implementation*

Obstacles to the implementation of the 1972 Agreement were not long in coming, however. Funds authorized by Congress for the construction of municipal waste treatment facilities were impounded by President Nixon during the early days of the accord,⁴³ and financial support was a continuing

37. *Id.*, art. VI.

38. *Id.*, art. VI(f) (i).

39. *Id.*, art. VI(f) (ii).

40. *Id.*, art. VII(i) provided that "[s]uch Board shall be composed of an equal number of members from Canada and the United States, including representatives from the Parties and from each of the State and Provincial Governments." The purpose of the Board is to assist the I.J.C. "in the exercise of the powers and responsibilities assigned to it under . . . [the 1972] Agreement." *Id.*

41. *Id.* The duties and responsibilities are set forth in the terms of reference attached to the Agreement. They include development and demonstration of research techniques, examination of the adequacy and reliability of research data, recommendations as to effective application of the data and future research projects, and advising the I.J.C. and its boards in matters within its expertise. *Id.*, Term of Reference for the Establishment of a Research Advisory Board.

42. *Id.*

43. Section 207 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. §§ 1251, 1287 (1976), authorized the appropriation of funds for the construction of municipal waste treatment facilities, which funds were not to exceed \$5 billion for fiscal year 1973, \$6 billion for fiscal year 1974, and \$7 billion for fiscal year 1975. President Nixon, in a letter to the Administrator of the Environmental Protection Agency, dated November 22, 1972, interpreted the amendments as authorizing him to spend less than the specified amounts, and directed the E.P.A. to spend no more than \$2 billion of the authorized \$5 billion for fiscal year 1973, \$3 billion of the authorized \$6 billion for fiscal year 1974, and \$4 billion of the authorized \$7 billion for fiscal year 1975. *Train v. City of New York*, 420 U.S. 35, 38 (1975). However, the Supreme Court ruled on February 18, 1975 that the 1972 Amendments required appropriation of the full amounts of funds allotted for each fiscal year, and thus released those funds impounded by the Executive Branch. 420 U.S. at 40; *High Court Kills Nixon's Blocking of Water Funds*, N.Y. Times, Feb. 19, 1975, at 1, col. 8.

The 1975 Supreme Court decision notwithstanding, the United States continued to procrastinate in the enforcement of the 1972 Agreement. Through 1978, the United States had completed only slightly more than half of the proposals set forth in the pact, and major municipal pollution control projects in Cleveland and Detroit were still unfinished. Bukro, *Lakes Budget Cut Angers Canada*, Chicago Tribune, Mar. 12, 1978, § 1A, at 4, col. 2; Warden, *Great Lakes Cleanup Clogged by Red Tape*, Chicago Tribune, Feb. 17, 1974, at 1, col. 2. In fact, the United States was required recently to file suit against the City of Detroit to force the city to make improvements in

source of friction between both nations.⁴⁴ Canada, for its part, was lax in requiring industries to comply with the Agreement.⁴⁵ Finally, the Agreement was established at a time when certain Great Lakes pollution problems were not fully understood.⁴⁶ As a result, these problems were not addressed adequately.

The 1972 Agreement was unsatisfactory in other respects as well. The pact proposed specific water quality programs and measures,⁴⁷ but did not include financial assistance provisions for their implementation. Similarly, many of

its municipal waste treatment facilities. *United States v. City of Detroit*, No. 7-71100 (E.D. Mich., filed May 6, 1977); see *U.S. is Suing Detroit Over Sewage Plant*, N.Y. Times, May 7, 1977, at 8, col. 1. A consent judgment was issued in September 1977 requiring the city to comply with federal water pollution standards by July 1978. *United States v. City of Detroit*, No. 7-71100 (E.D. Mich., filed Sept. 14, 1977). The city has failed to comply, however, and litigation is still pending. *United States v. City of Detroit*, No. 7-71100 (E.D. Mich., filed Mar. 21, 1979).

44. The hesitancy of the United States to adequately fund the Agreement resulted in increased tensions between the United States and Canada. Bukro, *Tide Turns Slowly on Lake Trouble Spots*, Chicago Tribune, Nov. 9, 1975, § 2, at 9, col. 1; *Kissinger Offers Data Compromise*, N.Y. Times, Oct. 16, 1975, at 11, col. 1; Bukro, *Lakes Budget Cut Angers Canada*, Chicago Tribune, Mar. 12, 1978, § 1A, at 4, col. 2. Secretary of State Kissinger recognized this problem and, in a press conference with Canadian External Affairs Secretary MacEachen on October 14, 1975, acknowledged that "we have an obligation under this agreement and, regrettably, we are behind schedule. . . . We agree with the objectives. We recognize that we have an obligation, and the Administration will do its utmost to live up to these obligations." *Secretary Kissinger Visits Canada*, 73 DEP'T STATE BULL. 635, 640 (1975).

45. See MacClennan, *Lakes Pact Toughens Toxic Ban*, Buffalo Evening News, June 18, 1978, at 1, col. 1. Canada's reluctance to enforce pollution standards on the paper and pulp industry has been of particular concern. See The Federation of Ontario Naturalists, Remarks for Delivery Concerning the Five-Year Review of the Great Lakes Water Quality Agreement of 1972 (July 14, 1977); see also *More Action is Needed on Great Lakes*, Environment Ontario Legacy, Oct.-Nov. 1977, at 3, col. 1. There are some indications, however, that the Province of Ontario is beginning to take remedial action against the paper and pulp industry, and to provide financial assistance for essential pollution abatement projects. See Province of Ontario Ministry of Treasury and Economics, News Release (Jan. 31, 1979). Note, however, that the Canadians claim to have fulfilled almost all of their obligations under the 1972 accord. Bukro, *Lakes Budget Cut Angers Canada*, Chicago Tribune, Mar. 12, 1978, § 1A, at 4, col. 2. The I.J.C. supports this claim. Hill, *The Great Lakes Have a New Enemy: The Air*, N.Y. Times, Oct. 10, 1976, § IV, at 4, col. 3.

46. Problems which were not evident or fully understood at the time of the 1972 Agreement include the effects of toxic substances on the lakes, the problem of airborne pollutants and agricultural and other land use activities which affect the lakes. See U.S. Dep't of State, Press Release No. 432, United States and Canada Sign Revised Great Lakes Water Quality Agreement (Nov. 22, 1978). See also § IV *infra*. In a speech delivered in Peterborough, Ontario on September 18, 1978, J. Walter Giles, the Assistant Deputy of the Ontario Ministry of the Environment remarked that

through the past six years of investigation, research, and monitoring the water quality of the lakes, and the use of better analysis capability, many new contaminants, such as PCBs and mirex, have been found. Hence, we are now discovering the heavy public price we pay for the past indiscriminate use of the lakes . . . and continued work is required to solve industrial emissions and urban and agricultural runoff of contaminants.

Address by J. Walter Giles, Assistant Deputy of the Province of Ontario Ministry of the Environment, 19th Annual Meeting and Convention of the Ready-Mixed Concrete Association of Ontario (Sept. 18, 1978).

47. See notes 32-36 *supra* and accompanying text.

the proposed water pollution control plans were contingent upon the cooperation of various governmental units,⁴⁸ thus providing both nations with convenient scapegoats should they not be implemented. Development of the proposed programs and measures for Great Lakes water quality control was not required until December 31, 1975,⁴⁹ thereby delaying positive action for three years from the date of signing. Finally, the 1972 Agreement was most disappointing in its failure to broaden the role and responsibilities of the I.J.C. Although it reinforced the Commission's existing role "by recognizing the . . . [I.J.C.] as the primary intergovernmental agent, coordinator and overseer for all Great Lakes pollution programs,"⁵⁰ the function of the Commission remained limited to the monitoring, surveillance and coordination of pollution programs. However, the creation of new responsibilities for the

48. State and local governments in the United States were not bound by the terms of the 1972 Agreement, and shall not be bound by the terms of the new accord. The 1978 Agreement, like its predecessor, is an executive agreement which, although made pursuant to the Boundary Waters Treaty and other federal legislation, see note 24 *supra*, is not a self-executing agreement. Thus, "it will not have the force of domestic law"; rather, "its provisions must be implemented by adequate legislation within the appropriate jurisdiction." U.S. DEP'T. OF STATE, FACT SHEET ON THE GREAT LAKES WATER QUALITY AGREEMENT OF 1978 (1978); see RESTATEMENT (SECOND) OF FOREIGN RELATIONS LAW OF THE UNITED STATES §§ 142, 141 (1965); *Pollution of the Great Lakes*, *supra* note 3, at 174; *Great Lakes Pact to be Signed Today*, N.Y. Times, Nov. 22, 1978, at 19, col. 1. *But cf.* *Sei Fejui v. State*, 217 P.2d 481 (Cal. Dist. Ct. App. 1950), *rev'd*, 38 Cal. App.2d 718, 242 P.2d 617 (1952), where it was held by the trial court that the provisions of the U.N. Charter, a non-self-executing treaty ratified by the United States, are "paramount to every law of every state in conflict with it." 217 P.2d at 488. Similarly, in *Oyama v. California*, 332 U.S. 633 (1948), Justice Murphy made reference to these same U.N. Charter provisions in a concurring opinion as grounds for invalidating the California Alien Land Law. See also 1 D.P. O'CONNELL, INTERNATIONAL LAW 65 (2d ed. 1970). Inasmuch as the domestic effect of a treaty is equivalent to that of an executive agreement, *United States v. Pink*, 315 U.S. 203 (1942); *United States v. Belmont*, 301 U.S. 324 (1937), the argument may be advanced, in light of *Sei Fejui* and *Oyama*, that the Great Lakes Water Quality Agreement of 1978 is binding on states and municipalities. However, if the conventional view, as reflected in the U.S. Dep't of State Fact Sheet, is adopted, the 1978 accord will not be binding on state and local governments.

On the other hand, recent federal legislation which binds states and municipalities to specific pollution control programs and measures will bring the United States into compliance with various provisions of the 1978 pact. Of particular importance is the Clean Water Act of 1977, 33 U.S.C.A. § 1251 (Supp. 1978); see also the National Environmental Policy Act, 42 U.S.C. § 4321 (1976); Federal Insecticide, Fungicide and Rodenticide Act, 7 U.S.C. § 135 (1976); Resource Conservation and Recovery Act of 1976, 42 U.S.C. § 6901 (1976); Federal Hazardous Substances Act, 15 U.S.C. § 1261 (1976). The Clean Water Act also provides at 33 U.S.C.A. § 1258 (Supp. 1978) for the development of pollution control programs in the Great Lakes basin.

Legislation which will bring about Canadian compliance with the 1978 accord includes the Canada Shipping Act, CAN. REV. STAT. c. S-9 (1970); Canada Water Act, CAN. REV. STAT. c. 5 (1st Supp. 1970); Fisheries Act, CAN. REV. STAT. c. F-14 (1970), as amended, CAN. STAT., 1977, c. 35; and the Environmental Contaminants Act, CAN. STAT., 1975, c. 72; see Address by Romeo LeBlanc, Minister of Fisheries and the Environment for Canada, Great Lakes Review Meeting, Toronto, Ontario (July 14, 1977) (copy available in *Boston College International and Comparative Law Review* offices). Of equal importance, the Canada-Ontario Agreement on Great Lakes Water Quality, enacted in 1971, ensures Federal-Provincial cooperation. *Id.*

49. 1972 Agreement, *supra* note 2, art. V.

50. Bilder, *supra* note 3, at 546; 1976 Agreement, *supra* note 2, art. VI. See note 37 *supra*.

I.J.C., including the power to implement and enforce the terms of the 1972 pact, was expressly rejected by both parties.⁵¹

Article IX of the 1972 Agreement provided that both nations "shall conduct a comprehensive review of the operation and effectiveness of this Agreement during the fifth year after its coming into force."⁵² Pursuant to this provision, the United States and Canada began review procedures in April 1977.⁵³ Negotiations between the parties culminated in May 1978 with an accord to expand the life of the 1972 Agreement in the form of a new Great Lakes water quality pact.⁵⁴

IV. THE GREAT LAKES WATER QUALITY AGREEMENT OF 1978

The 1978 Agreement was to be executed in an elaborate ceremony in the Summer of 1978. President Carter and Prime Minister Trudeau were urged to sign the agreement aboard a ship in Lake Erie.⁵⁵ Major obstacles regarding funding of the agreement arose in the United States, however, and the signing was postponed.⁵⁶ Secretary of State Vance and Canadian Foreign Minister Jamieson finally concluded the Agreement in a brief ceremony in Ottawa, Canada on November 22, 1978.⁵⁷

On its face, the 1978 Agreement contains important new changes which promise more vigorous control of pollution and improved Great Lakes water quality. The stated purpose of the Agreement is to "restore and maintain the chemical, physical and biological integrity of the Great Lakes Basin Ecosystem."⁵⁸ Consistent with this provision, the new pact proposes to make a

51. Bilder, *supra* note 3, at 547. Bilder noted that "the key functions of implementation, enforcement and funding are solely in the government's hands. Presumably, each government will continue to ignore Commission recommendations and to check any Commission activities that prove embarrassing to government policies." *Id.*

52. 1972 Agreement, *supra* note 2, art. IX(3).

53. *Fifth-Year Review of Great Lakes Water Quality Agreement Begins*, 76 DEPT STATE BULL. 446 (1977).

54. The 1978 Agreement was established pursuant to the Boundary Waters Treaty, *supra* note 3; the National Environmental Policy Act, 42 U.S.C. § 4332(F) (1976); the Clean Water Act of 1977, 33 U.S.C.A. § 1251(c) (Supp. 1978); and constitutional authority vested in the Executive Branch. See note 24 *supra*.

55. High ranking government officials in both nations urged President Carter and Prime Minister Trudeau "to symbolize the urgency of the job by signing the agreement aboard a ship in Lake Erie." MacClennan, *Lakes Pact Toughens Toxic Ban*, Buffalo Evening News, June 18, 1978, at 1, col. 1.

56. "[R]eluctance by the Federal Office of Management and Budget to subscribe to such an open-end commitment reportedly is what has held up United States endorsement of the agreement." *Great Lakes Pact to be Signed Today*, N.Y. Times, Nov. 22, 1978, at 19, col. 1; MacClennan, *Money Problems Plague Cleanup of Great Lakes*, Buffalo Evening News, July 17, 1978, at 9, col. 1.

57. *Great Lakes Pact to be Signed Today*, N.Y. Times, Nov. 22, 1978, at 19, col. 1; *U.S., Canada in Lakes Pact to Fight Water Pollution*, Chicago Tribune, Nov. 23, 1978, at 6, col. 3.

58. 1978 Agreement, *supra* note 1, art. II.

"maximum effort" to better understand the Great Lakes basin ecosystem and to eliminate to the "maximum extent possible" the discharge of all pollutants into Great Lakes waters.⁵⁹ A ban on the discharge of all toxic substances⁶⁰ and the elimination of persistent toxic substances are proposed.⁶¹ Finally, both parties pledge to provide financial assistance to construct waste treatment facilities,⁶² and to coordinate planning programs which monitor the discharge of pollutants in the Great Lakes.⁶³

A. General and Specific Objectives

The new accord follows closely the form of the 1972 Agreement in announcing both general and specific water quality objectives. The former, found in Article III,⁶⁴ are changed only slightly from the 1972 Agreement. Unlike the earlier pact, however, the general objectives of the 1978 Agreement provide that the Great Lakes are to be free from thermal pollution, from all floating materials and from all amounts of nutrients which "create growths of aquatic life that interfere with beneficial uses."⁶⁵

The specific objectives differ substantially from those found in the 1972 accord in that they announce new, stricter water quality goals. First, in those areas where the boundary waters are cleaner than required under the Agreement, both parties must take all "reasonable and practical measures" to maintain or *improve* the existing water quality.⁶⁶ The new Agreement also forbids the use of flow augmentation⁶⁷ as a substitute for water quality treatment,⁶⁸ and provides for the identification of areas where natural phenomena prevent the achievement of water quality objectives.⁶⁹ Another new aspect is the provision for mixing or limited use zones.⁷⁰ Such zones, which are located in the vicinity of any present or future municipal, industrial or tributary point source discharges, must be reported to the I.J.C. and shall be exempted from certain specific water quality objectives.⁷¹ The size of these

59. *Id.*

60. *Id.*, art. II(a).

61. *Id.*

62. *Id.*, art. II(b).

63. *Id.*, art. II(c).

64. *Id.*, art. III.

65. *Id.*

66. *Id.*, art. IV(1) (c).

67. Flow augmentation is defined as adding flow to a stream or waterway by artificial techniques to increase the power of the flow. One of the purposes of flow augmentation is to move pollutants through a waterway more quickly. Telephone Interview with John Gushue, Senior Scientist, Energy Resources, Inc., Cambridge, Mass. (Apr. 12, 1979).

68. 1978 Agreement, *supra* note 1, art. IV(1) (d).

69. *Id.*, art. IV(1) (e).

70. *Id.*, art. IV(1) (f). When waste water is discharged from industries, the effluent is controlled within a limited use or mixing zone to minimize the effects on the marine environment. Telephone Interview with Lawrence Zanca, Technical Engineer, Polaroid Corp., Cambridge, Mass. (Apr. 12, 1979).

71. *Id.*

mixing zones must be minimized to the "greatest possible degree," however, and shall be no larger "than that attainable by all reasonable and practicable effluent treatment measures."⁷² Lastly, the limited use zones cannot be regarded as a substitute for the treatment or control of effluent discharges at the source thereof.⁷³

This Agreement, for the first time in the history of Great Lakes accords, requires review of the specific objectives by both parties⁷⁴ and by the I.J.C., which is required to make "appropriate recommendations."⁷⁵ The United States and Canada must consult on the establishment of specific objectives "to protect the beneficial uses from the combined effects of pollutants";⁷⁶ they also must consult on pollutant loading rates for each lake basin so as to preserve the total Great Lakes system.⁷⁷

B. *Pollution Control Programs*

In addition to the provisions for general and specific water quality objectives, the 1978 Agreement introduces the requirements that joint United States-Canada pollution control programs be cost-effective,⁷⁸ and Great Lakes pollution research be oriented "in response to research priorities identified by the Science Advisory Board and recommended by the . . . [International Joint] Commission."⁷⁹

The new accord also makes important changes in the specifics of pollution control programs and measures. Of particular significance is the provision regarding the problem of municipal source pollution.⁸⁰ It requires that all American and Canadian municipal pollution control programs be "completed and *in operation* as soon as possible, and in the case of municipal sewage treatment facilities no later than December 31, 1982."⁸¹ The pact also requires all cities and towns with sewer systems to construct and operate waste treatment facilities which conform to the phosphorous limits and water quality objectives of the Agreement.⁸² Both parties pledge to provide financial assistance as well as construction and operating standards to ensure prompt compliance with this requirement.⁸³

72. *Id.*

73. *Id.*

74. *Id.*, art. IV(2).

75. *Id.*

76. *Id.*, art. IV(3) (a).

77. *Id.*, art. IV(3) (b).

78. *Id.*, art. V(2) (b).

79. *Id.*, art. V(2) (a).

80. *Id.*, art. VI(1) (a).

81. *Id.* (emphasis supplied); cf. 1972 Agreement, *supra* note 2, art. V(a), reproduced at note 33 *supra*.

82. 1978 Agreement, *supra* note 1, art. VI(1) (a) (i).

83. *Id.*, art. VI(1) (a) (ii), (iii). Note that these provisions were found also in the 1972 Agree-

Strict pollution control requirements for industry are included in the new agreement as well. First, as with municipal pollution control programs, the Agreement sets a timetable for industries, whereby pollution control programs "shall be completed and *in operation* as soon as possible and in any case no later than December 31, 1983."⁸⁴ Limits on effluent discharge and requirements for elimination of toxic substance pollution are imposed,⁸⁵ as are controls on thermal and radioactive discharges.⁸⁶ Industries are required lastly to "minimize . . . [the] adverse environmental impact of water intakes" and establish programs for the pre-treatment of industrial effluents prior to the treatment of such effluents in municipal facilities.⁸⁷

The accord also requires both parties to maintain an inventory of pollution abatement requirements "in order to gauge progress toward the earliest practicable completion and operation" of both municipal and industrial pollution control programs.⁸⁸ These inventories will be available to both the I.J.C. and the public.⁸⁹ Measures to reduce phosphate input, which will minimize the process of eutrophication in the Great Lakes,⁹⁰ and measures to control pollution from assorted land use activities⁹¹ are required, as they were in 1972,⁹² with the added proviso that both parties "review and supervise" road salting and salt storage practices, control soil losses and insure that all land use planning programs consider Great Lakes water quality.⁹³ Additionally, the parties must control pollution from shipping and dredging activities,⁹⁴ and from on-shore and offshore facilities.⁹⁵

The United States and Canada have agreed further to undertake several new pollution control programs. Measures for the "control of inputs of persis-

ment, but were not adhered to. See notes 33, 43, 44 *supra*. Thus, there is some reason to question whether these current provisions will be honored, particularly in light of the recent threats by the United States to cut the 1979-80 budget for cleaning the Great Lakes. See Bukro, *Carter Plan to Cut Clean Lake Funds Called 'Disaster'*, Chicago Tribune, Feb. 8, 1978, § 3, at 1, col. 4; Bukro, *Lakes Budget Cut Angers Canada*, Chicago Tribune, Mar. 12, 1978, § 1A, at 4, col. 2. See also note 43 *supra*.

84. 1978 Agreement, *supra* note 1, art. VI(1) (b) (emphasis supplied); cf. 1972 Agreement, *supra* note 2, art. V(b), reproduced at note 33 *supra*.

85. 1978 Agreement, *supra* note 1, art. VI(1) (b) (i), (ii).

86. *Id.*, art. VI(1) (b) (iii), (iv).

87. *Id.*, art. VI(1) (b) (v), (vi). Subparagraph (b) (vii) requires the establishment of "effective enforcement programs to ensure the above pollution abatement requirements are fully met." *Id.*, art. VI(1) (b) (vii).

88. *Id.*, art. VI(c).

89. *Id.* The inventories will include compliance schedules and status reports. *Id.*

90. *Id.*, art. VI(d).

91. *Id.*, art. VI(e).

92. 1972 Agreement, *supra* note 2, art. V(d).

93. 1978 Agreement, *supra* note 1, art. VI(e) (iv)-(vi).

94. *Id.*, art. VI(f), (g).

95. *Id.*, art. VI(h).

tent toxic substances” are to be adopted by both parties.⁹⁶ Secondly, a “coordinated surveillance and monitoring program,” designed to determine compliance with the Agreement and to identify emerging Great Lakes pollution problems, will be established.⁹⁷ Thirdly — and perhaps most importantly — the Agreement requires the establishment of programs to identify those airborne pollutants “which may have *significant* adverse effects on environmental quality” of the Great Lakes ecosystem.⁹⁸ Where it is determined that airborne pollutants are contributing significantly to Great Lakes pollution, the parties “agree to consult on appropriate remedial programs.”⁹⁹

C. *The International Joint Commission and Other Institutions*

Under the terms of the 1978 Agreement, the International Joint Commission continues to be responsible for advising, reporting and monitoring Great Lakes pollution.¹⁰⁰ The Commission is required to utilize principally the serv-

96. *Id.*, art. VI(k). These “control” provisions must extend to the “production, use, distribution and disposal” of all such persistent toxic substances in accordance with Annex 12. *Id.* These toxic substance control measures are consistent with a basic purpose of the Agreement, *i.e.*, to eliminate the discharge of toxic substances into the Great Lakes. *Id.*, art. II(a). Subparagraph (j) also requires both parties to implement the provisions of Annex 10 which address hazardous polluting substances. *Id.*, art. VI(j).

97. *Id.*, art. VI(m).

98. *Id.*, art. VI(l) (emphasis added). This provision is particularly important in light of recent findings that significant amounts of pollution found in the Great Lakes originate in the atmosphere. For example, it has been reported that 1,100 tons of phosphorous and 1,400 pounds of PCBs fall from the air into the lakes each year. Hill, *The Great Lakes Have a New Enemy: The Air*, N.Y. Times, Oct. 10, 1976, § IV, at 4, col. 3; Bukro, *Rain on the Great Lakes Falls Mainly as Pollution*, Chicago Tribune, June 24, 1976, § 7, at 1, col. 5. For a discussion of United States-Canada approaches to transboundary air pollution, see Note, *United States and Canadian Approaches to Air Pollution Control and the Implications for the Control of Transboundary Pollution*, 7 CORNELL INT’L L.J. 148 (1974); Comment, *International Air Pollution — United States and Canada — A Joint Approach*, 10 ARIZ. L. REV. 138 (1968).

99. 1978 Agreement, *supra* note 1, art. VI(1).

100. *Id.*, art. VII provides:

1. The International Joint Commission shall assist in the implementation of this Agreement. Accordingly, the Commission is hereby given, by a Reference pursuant to Article IX of the Boundary Waters Treaty, the following responsibilities:

- (a) Collation, analysis and dissemination of data and information supplied by the Parties and State and Provincial Governments relating to the quality of the boundary waters of the Great Lakes System and to pollution that enters the boundary waters from tributary waters and other sources;
- (b) Collection, analysis and dissemination of data and information concerning the General and Specific Objectives and the operation and effectiveness of the programs and other measures established pursuant to this Agreement;
- (c) Tendering of advice and recommendations to the Parties and to the State and Provincial Governments on problems of and matters related to the quality of the boundary waters of the Great Lakes System including specific recommendations concerning the General and Specific Objectives, legislation, standards and other regulatory requirements, programs and other measures, and intergovernmental agreements relating to the quality of these waters;

ices of the Great Lakes Water Quality Board¹⁰¹ and the Science Advisory Board¹⁰² in carrying out its responsibilities, and also to tender advice and recommendations on matters addressed in the Annexes to the 1978 pact.¹⁰³ Lastly, the I.J.C. is required to report biennially to the parties on the progress made toward fulfilling the water quality objectives.¹⁰⁴

The 1978 Agreement also provides that the Great Lakes Water Quality

- (d) Tendering of advice and recommendations to the Parties in connection with matters covered under the Annexes to this Agreement;
- (e) Provision of assistance in the coordination of the joint activities envisaged by this Agreement;
- (f) Provision of assistance in and advice on matters related to research in the Great Lakes Basin Ecosystem, including identification of objectives for research activities, tendering of advice and recommendations concerning research to the Parties and to the State and Provincial Governments, and dissemination of information concerning research to interested persons and agencies;
- (g) Investigations of such subjects related to the Great Lakes Basin Ecosystem as the Parties may from time to time refer to it.

101. *Id.*, art. VII(6).

102. *Id.*; see note 106 *infra*.

103. The Annexes to the 1978 Agreement, which are of considerable length, set out standards and other goals adopted by the parties: Annex 1, entitled "Specific Objectives," establishes water quality goals for persistent toxic substances and other chemical, physical, microbiological and radiological waste. Annex 2 establishes requirements for the development of limited use zones, including restrictions and limitations on their use. Annex 3, entitled "Control of Phosphorous," lists goals to be achieved by phosphorous control measures and prescribes specific programs for the achievement of such goals. Annex 4 regulates the discharge of oil and hazardous polluting substances from vessels by establishing specific programs and measures to be taken by vessel operators. Annex 5 regulates the discharge of waste such as sewerage and garbage from vessels. Annex 6 provides for review procedures of pollution from shipping activities to be taken by the United States Coast Guard and Canadian Cost Guard. Annex 7, entitled "Dredging," establishes a Sub-Committee on Dredging under the auspices of the Water Quality Board to review existing dredging practices and to propose guidelines and other regulations. Annex 8 requires both parties to adopt regulations for the discharge of oil or hazardous polluting substances from onshore and offshore facilities, which regulations must be implemented within six months of the date of the agreement. Annex 9 provides for the continuation of the "Joint Canada-United States Marine Pollution Contingency Plan," which was adopted originally on June 20, 1974 and which provides for a coordinated and integrated response to pollution incidents in the Great Lakes. Annex 10, entitled "Hazardous Polluting Substances," requires the parties to: 1) maintain a list (Appendix 1 of the 1978 Agreement) of substances known to have toxic effects on aquatic and animal life and which may be discharged into the lakes; 2) maintain a list (Appendix 2 of the 1978 Agreement) of substances which *potentially* have toxic effects; 3) insure that Appendices 1 and 2 are continually updated "in light of growing scientific knowledge"; and 4) develop programs to minimize or eliminate the risk of release of hazardous polluting substances. Annex 11 establishes a surveillance and monitoring program to assess the degree of compliance with the Agreement, determiné the achievement of the water quality objectives, evaluate water quality trends and identify emerging pollution problems. Finally, Annex 12, entitled "Persistent Toxic Substances," adopts general principles regarding the discharge of persistent toxic substances into Great Lakes waters, and proposes specific monitoring and research programs.

104. 1978 Agreement, *supra* note 1, art. VII(3). *But cf.* 1972 Agreement, *supra* note 2, art. VI(3), which required *annual* reports on progress toward the achievement of water quality objectives.

Board continue to be the "principal advisor" to the I.J.C.¹⁰⁵ A Science Advisory Board is established to provide advice on research or scientific matters to both the Commission and the Water Quality Board.¹⁰⁶ Finally, the Agreement establishes a Great Lakes Regional Office of the International Joint Commission "[t]o provide administrative support and technical assistance to the two Boards, and to provide a public information service for the programs . . . undertaken by the International Joint Commission and by the Boards."¹⁰⁷

V. SUMMARY AND ANALYSIS

A. Preliminary Observations

Although an exhaustive analysis of the Great Lakes Water Quality Agreement is inappropriate at this early stage, certain preliminary observations may be made. On the positive side, the pact sets forth important new objectives for Great Lakes pollution control. Municipal sewage treatment facilities and industrial pollution programs, for example, must be in operation by the end of 1982 and 1983 respectively.¹⁰⁸ The 1972 Agreement, in contrast, required only that pollution control programs be "in the process of implementation by December 31, 1975."¹⁰⁹ The new Agreement also acknowledges the complexity of environmental problems¹¹⁰ and reflects the increasing concern of both nations over the adverse effects of toxic substances, pesticides and other chemical wastes in the Great Lakes. Consequently, a ban on the discharge of toxic and radioactive substances, and thermal pollution is provided.¹¹¹ In contrast, the 1972 Agreement spoke only in generalities and did not address the problem directly.¹¹² The negative effect of air pollution on Great Lakes water

105. 1978 Agreement, *supra* note 1, art. VIII(1) (a).

106. *Id.*, art. VIII(1) (b). The "Terms of Reference for the Joint Institutions and the Great Lakes Regional Office" identifies the role of the Science Advisory Board.

107. *Id.*, art. VIII(3).

108. *Id.*, art. VI(1) (a), (b).

109. 1972 Agreement, *supra* note 2, art. V(1).

110. 1978 Agreement, *supra* note 1, examines new and emerging pollution problems which effect the Great Lakes — *e.g.*, the effect of airborne pollutants on water quality — and also adopts more rigorous water quality goals and standards. See § IV *supra*. The seriousness and complexity of Great Lakes pollution is being understood only now. See *Great Lakes Study Finds Cleaning Up Could Take Decade*, N.Y. Times, Mar. 12, 1976, at 35, col. 1, where it was reported that "the parties in negotiating and signing the agreement in 1972 could not have foreseen the magnitude of the problem." *Id.*

111. 1978 Agreement, *supra* note 1, art. VI(1) (b) (i)-(iv).

112. Programs for the control of toxic substances and other chemical wastes were addressed at art. V of the 1972 Agreement, *supra* note 2. As to the effectiveness of that provision, it was stated shortly after the 1972 accord was established that

Article V is extremely general; it fails to quantify the objectives of the financial assistance to be rendered with the exception of Annex 2 which limits phosphorous

quality also is recognized in the 1978 Agreement,¹¹³ and new strategies for controlling phosphorous loadings¹¹⁴ and pollution from land use activities¹¹⁵ are set forth. The new pact establishes a surveillance and monitoring program to assess compliance with the water quality objectives,¹¹⁶ and requires an inventory of pollution abatement requirements to closely monitor the clean up efforts of municipal and industrial facilities which discharge into the Great Lakes.¹¹⁷ Lastly, the United States and Canada should be commended for having re-examined in considerable detail the problem of Great Lakes pollution and for having established a new accord. Both nations were obligated only to review the effectiveness of the 1972 Agreement after five years,¹¹⁸ and it is to their credit that a new, and more comprehensive Great Lakes pollution pact has emerged from that review procedure.

The 1978 Agreement can be an effective mechanism for environmental control if these positive provisions are implemented. The United States has demonstrated in the past that it can marshal the necessary forces to implement a bilateral international agreement. The 1974 Colorado River Salinity Agreement¹¹⁹ with Mexico is but one example of such an American effort.

discharge of certain waste treatment plants to one milligram per litre, and sets up a chart for load reductions. Thus, except for the phosphate levels, no specific burdens are placed on either party.

Pollution of the Great Lakes, *supra* note 3, at 176-77.

113. 1978 Agreement, *supra* note 1, art. VI(1); see notes 98, 99 *supra* and accompanying text.

114. 1978 Agreement, *supra* note 1, art. VI(d); see also Annex 3, *supra* note 103, which establishes specific phosphorous loading rates.

115. 1978 Agreement, *supra* note 1, art. VI(e); see notes 91, 93 *supra* and accompanying text.

116. 1978 Agreement, *supra* note 1, art. VI(m); see text accompanying note 97 *supra*.

117. 1978 Agreement, *supra* note 1, art. VI(c); see text accompanying note 88 *supra*.

118. 1972 Agreement, *supra* note 2, art. IX(3).

119. Agreement Confirming Minute No. 242 of the International Boundary and Water Commission, United States-Mexico, [1973] 24 U.S.T. 1968, T.I.A.S. No. 7708 [hereinafter cited as Colorado River Salinity Agreement]. For a thorough examination of the Colorado River salinity dispute, see Brownell & Eaton, *The Colorado River Salinity Problem with Mexico*, 69 AM. J. INT'L L. 255 (1975) [hereinafter cited as Brownell & Eaton]; see also *Environmental Control Along the Boundaries*, *supra* note 3, at 515-17; 2 F. GRAD, TREATISE ON ENVIRONMENTAL LAW § 13.04 [b][i] (1978) [hereinafter cited as F. GRAD].

The Colorado River Salinity Agreement is not analogous to the Great Lakes Water Quality Agreement of 1978 in all respects, however. The C.R.S.A. addresses a single problem, *i.e.*, high saline content in the Colorado River, whereas the 1978 Great Lakes pact examines a multitude of pollution problems. Furthermore, expenditures by the United States for the Colorado River Salinity Agreement totaled approximately \$150 million, Brownell & Eaton, *supra*, at 267-68; in contrast, the costs expected to be incurred by the United States and Canada under the present Great Lakes pact are "considerably higher than the \$5.8 billion spent during the first five-year agreement." MacClennan, *IJC Members Fear Hobbling of Lakes Cleanup*, Buffalo Evening News, July 20, 1978, at 15, col. 1. Moreover, the U.S. will spend a substantially greater percentage of the total costs than will Canada. In short, the Colorado River Salinity Agreement is, in contrast to the 1978 Great Lakes accord, limited in scope and magnitude.

B. *A Comparison: The 1974 U.S.-Mexico Colorado River Salinity Agreement*

Under the terms of the 1944 Water Utilization Treaty,¹²⁰ Mexico is allotted 1,500,000 acre-feet of the waters of the Colorado River.¹²¹ Quality of the allotted waters became an issue in 1961 as drainage water with a high saline content was pumped from the Welton-Mohawk Irrigation and Drainage District in Arizona into the Colorado River.¹²² The discharge had the obvious effect of increasing the salinity level of the river waters flowing to Mexico to unacceptable levels.¹²³ Although interim steps were taken between 1961 and 1974 to resolve the matter,¹²⁴ water with a high saline content continued to flow to Mexico. In 1972, the United States appointed a Special Representative to recommend a permanent solution.¹²⁵ His recommendations, which were adopted in the 1974 Agreement, required the United States to take specific measures to reduce the salinity level of the waters flowing to Mexico including: 1) the provision of specific solutions for salinity control;¹²⁶ and 2) the provision of financial and other assistance for the improvement and rehabilitation of areas within Mexico affected by saline river waters.¹²⁷ The terms of the

120. 1944 Water Utilization Treaty, United States-Mexico, 59 Stat. 1219, T.S. No. 994 [hereinafter cited as 1944 Treaty].

121. 1944 Treaty, *supra* note 120, art. 10.

122. Brownell & Eaton, *supra* note 119, at 256.

123. *Id.*; see also *Environmental Control Along the Boundaries*, *supra* note 3, at 515.

124. Brownell & Eaton, *supra* note 119, at 256-57. These interim steps included selective pumping of the Welton-Mohawk discharge "to alleviate salinity at the times most critical to Mexico," and the construction of a diversionary canal. *Id.*

125. President Nixon appointed former Attorney General of the United States Herbert Brownell, as Special Representative for the Resolution of the Sanitary Problem with Mexico. *Named to Study Colorado River Salinity Problem*, 67 DEP'T STATE BULL. 307 (1972).

126. International Boundary & Water Comm'n., United States-Mexico, Minute No. 242, Aug. 30, 1972, *reprinted in* [1973] 24 U.S.T. 1971, T.I.A.S. No. 7708 [hereinafter cited as Minute No. 242] provides that the "United States shall adopt measures to assure that not earlier than January 1, 1974, and no later than July 1, 1974, the approximately 1,360,000 acre-feet (1,677,545,000 cubic meters) delivered to Mexico upstream of Morelos Dam, have an annual average salinity of no more than 115 p.p.m. \pm 30 p.p.m. U.S. count (121 p.p.m. \pm 30 p.p.m. Mexican count) over the annual average salinity of Colorado River waters which arrive at Imperial Dam. . . ." Minute No. 242, point 1(a). Interim measures to control the salinity content of the Colorado River included extension of the Wellton-Mohawk bypass drain. Minute No. 242, points 3, 4. A permanent solution in the form of a desalinization plant was proposed by Mr. Brownell, Brownell & Eaton, *supra* note 119, at 266-68, and authorized by Congress. Colorado River Basin Salinity Control Act, 43 U.S.C.A. § 15 (Supp. 1978).

127. Minute No. 242, *supra* note 126, point 7, provides that the "United States will support efforts by Mexico to obtain appropriate financing on favorable terms for the improvement and rehabilitation of the Mexicali Valley. The United States will also provide nonreimbursable assistance on a basis mutually acceptable to both countries exclusively for those aspects of the Mexican rehabilitation program of the Mexicali Valley relating to the salinity problem, including tile drainage. In order to comply with the above-mentioned purposes, both countries will undertake negotiations as soon as possible."

1974 Agreement were implemented through the Colorado River Basin Salinity Control Act.¹²⁸

The importance of the Colorado River Salinity Agreement to the 1978 Great Lakes pact cannot be understated. The 1974 Agreement illustrates that the United States will acknowledge liability for the international environmental harm it has caused, and will expend considerable resources to remedy the damage. Furthermore, the United States has demonstrated that it can be a concerned and cooperative neighbor. Finally, as one author has noted, the Colorado River Salinity Agreement confirms "[t]he obligations of States to refrain from subjecting their neighbors to environmental damage . . . , and, no less important, . . . [settles] a long-standing and sometimes bitter international dispute."¹²⁹ Moreover, the cooperative and accommodating posture taken by the United States during the Colorado River salinity dispute stands in stark contrast to the conduct taken by the United States during the years following the 1972 Great Lakes water quality pact.

C. *Obstacles to the Implementation of the 1978
Great Lakes Water Quality Agreement*

The improvements in the Great Lakes Water Quality Agreement of 1978 notwithstanding, the path to successful implementation of the Agreement is strewn with obstacles. First, interest in and commitment to the new accord appears to be lacking. This absence of commitment is evidenced by the negotiations, which were carried out in relative obscurity,¹³⁰ and the endorsement of the Agreement, which was concluded in a brief and unobtrusive signing ceremony, rather than the elaborate one which had been proposed.¹³¹ Further, increasing economic pressures and tax-cutting movements may have a negative effect on the financial commitment necessary to wage an effective anti-pollution campaign.¹³² Early in 1978 while the negotiations for a new accord were in progress, the Carter Administration made short-lived threats to

128. 43 U.S.C.A. § 1571 (Supp. 1978). Sections 1571-74 provide the Secretary of the Interior with the authority to construct the mechanisms necessary for compliance with the 1974 Agreement. 43 U.S.C.A. §§ 1571-74 (Supp. 1978). Congress appropriated \$155,500,000 for construction of such mechanisms as well as funds sufficient to meet increased construction costs, if any, and sums sufficient to operate and maintain the desalinization facilities. 43 U.S.C.A. § 1578 (Supp. 1978).

129. *Environmental Control Along the Boundaries*, *supra* note 3, at 516; F. GRAD, *supra* note 119, at 13-204 notes that "[t]he Colorado River Salinity Agreement is a good example of the application of the principle of good neighborliness." *Id.*

130. Telephone interview with Dr. E. Tebot, U.S. Environmental Protection Agency, Chicago, Illinois (Feb. 15, 1979). *Cf.* note 141 *infra*.

131. See note 55 *supra* and accompanying text.

132. MacClennan, *IJC Members Fear Hobbling of Lakes Cleanup*, Buffalo Evening News, July 20, 1978, at 15, col. 1, where it was also reported that I.J.C. officials and others fear that

cut the 1979-80 Great Lakes clean water budget,¹³³ threats which could certainly recur if inflationary trends continue.¹³⁴ Equally problematic is the provision of the Agreement which requires that "[m]echanisms be developed for appropriate *cost-effective* international cooperation."¹³⁵ While cost-effective pollution control programs are certainly desirable, cost-effectiveness should not be an immutable obstacle which blocks or curtails needed Great Lakes pollution projects. Finally, as experience with the 1972 Agreement illustrates,¹³⁶ the United States has proven to be lax in providing adequate funding, despite commitments to the contrary.¹³⁷

Regrettably, the 1978 Agreement also fails to provide the I.J.C. with any additional responsibilities.¹³⁸ While outward assertions indicate that "[t]he valuable role of the International Joint Commission . . . will be continued,"¹³⁹ the accord merely reaffirms the advisory role of the I.J.C. and ignores repeated requests that the scope of the Commission's authority be broadened.¹⁴⁰ It is also important to note in this regard that the I.J.C. had no input into the formation and development of the 1978 Agreement.¹⁴¹

Furthermore, while the pact acknowledges the negative effect of airborne pollutants on the Great Lakes, both parties have proposed a solution wholly inadequate in relation to the magnitude of the problem.¹⁴² Finally, the 1978

"[e]stimates that the continued cleanup effort will run well above the expenditures of \$5.8 billion spent during the first five-year agreement . . . [will] lead to a demand for a slowdown in cleanup." *Id.* "President Carter's economic advisers already are warning that environmental regulation may be triggering inflation." *Lakes Pact Toughens Toxic Ban*, Buffalo Evening News, June 18, 1978, at 1, col. 1.

These economic pressures continue. On February 22, 1979, it was reported that several senior U.S. Environmental Protection Agency officials have threatened to resign in protest over the Carter Administration's efforts to curtail E.P.A. activities as a means of controlling inflation. *Some in E.P.A. Assail White House Moves*, N.Y. Times, Feb. 22, 1979, at 1, col. 2; see also Osborne, *Regulation Blues*, THE NEW REPUBLIC, Mar. 10, 1979, at 7.

133. *Lakes Budget Cut Angers Canada*, Chicago Tribune, Mar. 12, 1978, § 1A, at 4, col. 2. This threat was temporary, *U.S. Won't Cut Funds to Clean Great Lakes*, Chicago Tribune, Feb. 10, 1978, at 3, col. 1, but Canada was dissatisfied with Carter Administration assurances. *Lakes Budget Cut Angers Canada*, Chicago Tribune, Mar. 12, § 1A, at 4, col. 2.

134. See note 13 *supra*.

135. 1978 Agreement, *supra* note 1, art. V(2) (b) (emphasis added).

136. See notes 43, 44 *supra* and accompanying text.

137. *Id.*

138. 1978 Agreement, *supra* note 1, art. VII, reproduced at note 9 *supra*.

139. *Id.*

140. See note 21 *supra*; see also *Pollution of the Great Lakes*, *supra* note 3, at 178-79; *Environmental Control Along the Boundaries*, *supra* note 3, at 522-24.

141. One I.J.C. member complained that "[t]he new agreement was contrived secretly and not shown to the I.J.C." *IJC Official Blasts New Pollution Pact*, Windsor Star, July 19, 1978, at 1, col. 1. In fact, the Commission was not appraised of the status of negotiations between the two parties or of the contents of the agreement until June 1978 when they were presented with a draft of the text. *Id.*

142. In light of the seriousness of the findings that air pollution has a negative effect on Great Lakes water quality, see note 98 *supra*, it is questionable whether the provisions of art. VI(m) of the 1978 Agreement, *supra* note 1, are sufficient.

Agreement is a passive document which establishes goals and standards but fails to provide a mechanism to implement those objectives or to penalize the parties for failure to comply with the accord. Thus, the new Agreement invites non-compliance by either nation.

VI. CONCLUSION

The period immediately following its enactment is critical for the success of the Great Lakes Water Quality Agreement of 1978. If the accord is to be successful, both parties must demonstrate their active support by initiating the implementation and enforcement process.

At the present time, however, the future appears uncertain. This uncertainty arises from the lack of commitment by the two signatories. Both Canada and the United States possess the necessary technological, economic and legal factors to effectively control pollution in the Great Lakes. This potential existed in 1972 and continues to exist today. The realization of the potential to control pollution is a function of: 1) the willingness of the two governments to adopt enabling national legislation; 2) a commitment to enforce such national legislation; and 3) a commitment to provide the requisite funds for the implementation of such legislation. In the long run, the course of action chosen by the governments will be the result of a host of complex and diverse interests seeking to influence public policy in both nations.¹⁴³

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143. Bilder, *supra* note 3, at 552, says the following about the 1972 pact, which is equally applicable to the 1978 Agreement:

Each government now has the capability — technical, economic, and legal — to do what is required to control Great Lakes pollution. Thus, the success or failure of efforts to control Great Lakes pollution will depend ultimately not on what the new Agreement says or what the IJC does, but on what the two governments themselves choose to do; the outcome will depend upon their willingness to adopt the necessary national legislation and standards, to implement these programs through effective judicial and administrative enforcement, and to provide the substantial funds required. What the governments choose to do will, in turn, depend largely on shifting public attitudes and the eventual outcome of the clash of complex competing political and economic forces now operating upon relevant governmental environmental policies in each country.